

Notice of Allowability

Application No.

09/995,671

Applicant(s)

KIM ET AL.

Examiner

Jean B. Corielus

Art Unit

2637

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 6/30/05.
2. ☒ The allowed claim(s) is/are 1-13 and 15-19, renumbered as 1-18, respectively.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____


Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying Indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____


Jean B. Corielus
Primary Examiner
Art Unit: 2637 9/30/05

DETAILED ACTION

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Final authorization for this examiner's amendment was given in a telephone interview with David Oren on 9/27/05.

The application has been amended as follows:

IN THE SPECIFICATION:

Page 2, line 6, "101" has been replaced by --11--.

IN THE CLAIMS:

Claims 1, 4-8, 12-15 and 17-19 have been amended as follow:

1. (Currently Amended) A transmission power detecting apparatus of a CDMA system comprising:

a base station transmitting unit for transmitting a radio frequency (RF) CDMA signal to a terminal; and

a transmission power detecting unit for detecting an average power of the transmitted RF CDMA signal in a frequency domain, the transmission power detecting unit including:

a mixer to provide an intermediate frequency signal and to provide a filtered intermediate signal;

a first filter to filter the intermediate frequency signal;

a converter to provide a digital signal based on the filtered intermediate frequency signal;

a buffer to store the digital signal;

a second filter to filter the signal output from the buffer; and

a unit to convert the signal output from the second filter and to determine the average power.

4. (Currently Amended) The apparatus of claim 1, wherein:

the mixer comprises a first mixer for down-converting the RF CDMA signal into the intermediate frequency (IF) signal;

the first filter comprises a first BPF for filtering the [down converted] IF CDMA signal;

the converter comprises a first ADC for sampling the filtered IF CDMA signal and digital-converting [it] said filtered IF CDMA signal;

the buffer comprises a FIFO (First-In, First-Out) for storing the digital-converted IF CDMA signal;

the second filter comprises a finite impulse response (FIR) filter for filtering the IF digital CDMA signal which has been outputted from the FIFO; and

Art Unit: 2637

the unit comprises a Fourier transform (FFT) unit for Fourier-converting the filtered IF digital CDMA signal and computing [an] said average power of the RF CDMA signal.

5. (Currently Amended) A transmission power detecting apparatus of a CDMA system comprising:

a base station transmitting unit for transmitting an RF CDMA signal to a terminal;

a transmission power detecting unit for detecting an average power of the RF CDMA signal in the frequency domain; and

a digital processor for compensating the detected average power with a temperature compensation value stored in a memory and checking a power of the RF CDMA signal, the transmission power detecting unit including:

a mixer to provide an intermediate frequency signal;

a first filter to filter the intermediate frequency signal and provide a filtered intermediate signal;

a converter to provide a digital signal based on the filtered intermediate frequency signal; and

a buffer to store the digital signal;

a second filter to filter the signal output from the buffer; and

a unit to determine the average power based on [the converted digital signal] an output of the second filter.

6. (Currently Amended) The apparatus of claim 5, wherein [the transmission power detecting unit further includes]

the mixer comprising a first mixer for down-converting the RF CDMA signal into the intermediate frequency (IF) signal;

the first filter comprises a first BPF for filtering the [down converted] IF CDMA signal;

the converter comprising a first ADC for sampling the filtered IF CDMA signal and digital-converting [it] said filtered IF CDMA signal;

the buffer comprises a FIFO (First-In, First-Out) for storing the digital-converted IF CDMA signal;

the second filter comprises a finite impulse response (FIR) filter for filtering the IF digital CDMA signal which has been outputted from the FIFO; and

the unit comprising a Fourier transform (FFT) unit for Fourier-converting the filtered IF digital CDMA signal and computing [an] said average power of the RF CDMA signal.

7. (Currently Amended) The apparatus of claim 6, wherein the FFT obtains [an] said average power (P_{avg}) according to the following equation[.]:

$$P_{avg} = \int_{-BW/2}^{+BW/2} V(f) * (f) dt$$

wherein $V(f)$ is a frequency characteristic function of the filtered IF digital CDMA signal and BW is a bandwidth of the FIR filter.

8. (Currently Amended) A transmission power adjusting apparatus comprising:

a base station transmitting unit for converting a baseband digital CDMA into an RF CDMA signal and transmitting [it] said RF CDMA signal;

a transmission power detecting unit for detecting a power of the RF CDMA signal in a first frequency domain;

an average power detecting unit for detecting [a] an average power of the baseband digital CDMA signal in a second frequency domain; and

a digital processor for comparing the detected transmission power with the average power and controlling the power of the RF CDMA signal, wherein the average power detecting unit comprises:

first and second square units for respectively squaring digital CDMA signals of a channel 'I' and a channel 'Q' and providing respective output signals;

an adder for adding the output signals of first and second square units and providing a digital CDMA signal;

a FIR filter for filtering the digital CDMA signal outputted from the adder; and

a FFT unit for Fourier-converting the digital CDMA signal outputted from the FIR filter and computing said average power of the baseband digital CDMA signal in the second frequency domain.

12. (Currently Amended) The apparatus of claim 8, wherein the transmission power detecting unit comprises:

a first mixer for down-converting the RF CDMA signal into an intermediate frequency (IF) signal;

a first BPF for filtering the [down converted] IF CDMA signal and providing a filtered IF CDMA signal;

a received signal strength indicator (RSSI) detector for detecting a strength of the filtered IF CDMA signal in the form of a voltage; and

a first ADC for digital-converting the voltage detected by the RSSI detector and outputting [a] said transmission power of the RF CDMA signal.

13. (Currently Amended) The apparatus of claim 8, wherein the transmission power detecting unit comprises:

a first mixer for down-converting the RF CDMA signal into an intermediate frequency (IF) signal;

a first BPF for filtering the [down converted] IF CDMA signal and providing a filtered IF CDMA signal;

a first ADC for sampling the filtered IF CDMA signal and digital-converting [it] said filtered IF CDMA signal;

a FIFO memory for storing the digital-converted IF CDMA signal;

a finite impulse response (FIR) filter for filtering the IF digital CDMA signal which has been outputted from the FIFO memory; and

a first Fourier transform (FFT) unit for Fourier-converting the filtered IF digital CDMA signal and computing [an] said [average] power of the RF CDMA signal.

Claim 14 has been canceled

15. (Currently Amended) A transmission power adjusting apparatus of a base station transmitting instrument comprising:

a base station transmitting unit for converting a baseband digital CDMA signal into an RF CDMA signal and transmitting [it] the RF CDMA signal;

a transmission power detecting unit for detecting [a] an average power of the RF CDMA signal in a first frequency domain;

an average power detecting unit for detecting a power of the baseband digital CDMA signal in a second frequency domain; and

a digital processor for comparing the detected transmission power with [an] said average power and controlling a power of the RF CDMA signal,

wherein the average power detecting unit comprising:

first and second square units for respectively squaring digital CDMA signals of a channel 'I' and a channel 'Q' and providing respective output signals;

an adder for adding the output signals of first and second square units and providing a digital CDMA signal;

a FIR filter for filtering the digital CDMA signal outputted from the adder;

and

a FFT unit for Fourier-converting the digital CDMA signal outputted from the FIR filter and computing [an] said average power of the baseband digital CDMA signal in the second frequency domain.

Art Unit: 2637

17. (Currently Amended) The apparatus of claim 15, further comprising: [an] a second adder for comparing the magnitude of the transmission power with the average power.

18. (Currently Amended) The apparatus of claim 15, wherein the transmission power detecting unit comprises:

a first mixer for down-converting the RF CDMA signal into an intermediate frequency (IF) signal;

a first BPF for filtering the [down converted] IF CDMA signal and providing a filtered IF CDMA signal;

a received signal strength indicator (RSSI) detector for detecting a strength of the filtered IF CDMA signal in the form of a voltage; and

a first ADC for digital-converting the voltage detected by the RSSI detector and outputting [a] said transmission power of the RF CDMA signal.

19. (Currently Amended) The apparatus of claim 15, wherein the transmission power detecting unit comprises:

a first mixer for down-converting the RF CDMA signal into an intermediate frequency (IF) signal;

a first BFF for filtering the [down converted] IF CDMA signal and providing a filtered IF CDMA signal;

Art Unit: 2637

a first ADC for sampling the filtered IF CDMA signal and digital-converting ~~[[it]]~~
said filtered IF CDMA signal;

a FIFO memory for storing the digital-converted IF CDMA signal;

a finite impulse response (FIR) filter for filtering the IF digital CDMA signal which
has been outputted from the FIFO memory; and


a Fourier transform (FFT) unit for Fourier-converting the filtered IF digital CDMA
signal and computing [an] said [average] power of the RF CDMA signal.

Any inquiry concerning this communication or earlier communications from the
examiner should be directed to Jean B. Corrielus whose telephone number is 571-272-
3020. The examiner can normally be reached on Maxi-Flex.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's
supervisor, Jay Patel can be reached on 571-272-2988. The fax phone number for the
organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2637

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Jean B Corrielus
Primary Examiner
Art Unit 2637 9/30/05